Demand Response and the Revised EPA Engine Rules (NESHAP and NSPS)

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Use of Engines in Demand Response

- Emergency Demand Response (DR)
  - Used as measure of last resort
  - Program called by ISO either at the start of voltage reductions (e.g., ISO NE RTEG) or just prior to voltage reductions (e.g., PJM, ERCOT)
  - Although emergency DR is rarely called, engines need to be available more than 15 hrs/yr to meet FERC tariff requirements
- Non-Emergency DR or Peak Shaving
  - Can be called by the utility for both emergency and non-emergency (e.g., economic) reasons (ISO NE RTDR does not qualify since ISO is not a utility)

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Key Rule Change: 100 Hour Usage

Back-up generators can run up to 100 hours/year for any combination of:

- **Testing & Maintenance**
- **Emergency DR** – *defined in Slide 4*
- **"Non-Emergency" Situations** (50 of the 100 hours/year) – *defined in Slide 5*
  - What EPA defines as "non-emergency" is actually emergency DR for transmission and distribution- level emergencies
- **Peak Shaving or Non-Emergency DR** (50 of the 100 hours/year, and only until May 2, 2014) – *defined in Slide 6*

EPA Language

"(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2)."

Reference: NESHAP (63.6640(f)(2)), NSPS (IIII) (60.4211(f)(2)), NSPS (JJJJ) (60.4243(d)(2))

Emergency DR

The key triggers are:

- NERC Energy Emergency Alert (EEA) Level 2; OR
- 5% Deviation of Voltage or Frequency

EPA Language

*"(ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an **Energy Emergency Alert Level 2** as defined in the NERC Reliability Standard EOP-002-3.*

*(iii) Emergency stationary RICE may be operated for periods where there is a **deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency**."*

Reference: NESHAP (63.6640(f)(2)), NSPS (IIII) (60.4211(f)(2)(ii)), NSPS (JJJJ) (60.4243(d)(2)(ii))

“Non-Emergency” Situations

Specific requirements must be met to be eligible for operation of up to 50 hours (out of 100 hours/year) in transmission or distribution-level emergencies.

- Subsection B (T&D Limitations) is key and utility-specific

EPA Language

“(ii) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.”

Reference: NESHAP (6640(f)(4)(ii)), NSPS (IIII) (60.4211(f)(3)(i)), NSPS (JJJJ) (60.4243(d)((3)(i))

Peak Shaving or Non-Emergency DR

- 50 hours of operation per year (as part of the total 100 hours/year) are permitted through May 2, 2014 ONLY for programs by **local distribution system operator**
- **Starting May 3, 2014, all back-up generators used in traditional peak-shaving, economic, or other non-emergency DR programs must meet NESHAP non-emergency requirements**

EPA Language

"(i) Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system."

Reference: NESHAP (6640(f)(4)(i))

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Serious Consequences for Exceeding Limits

Exceeding limits will be treated as violations of the Clean Air Act.

- EPA removed the “once a non-emergency engine, always a non-emergency engine” clause and will now handle on a case-by-case basis

EPA Language

“If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.”

Reference: NESHAP (6640(f)), NSPS (IIII) (60.4211(f)), NSPS (JJJJ) (60.4243(d))

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New Requirements

- Starting in 2015, generator owners need to start using ULSD (if CI) – not emptying existing tanks, but for all new purchases
- Annual reports starting with calendar year 2015 and must be submitted no later than March 31, 2016
- Valid for Emergency Engines >100 HP and contractually obligated >15 hours/year for emergency DR or “non-emergency” operations

MassDEP Regulations vs. EPA

- Must use the more conservative of MassDEP and EPA regulations
- 100 hour per calendar year limit for testing/maintenance/emergency DR of which 50 hours can be used for non-emergency (e.g., transmission emergencies) – *New requirement as per EPA regulations*
- Peak shaving or non-emergency DR only allowed if permitted via MassDEP or if fall out of MassDEP air regulations (e.g., engine < 3 mmBtu/hr and installed prior to 3/23/06 or < 37 kW if installed on or after 3/23/06)
- Total engine use including emergencies limited by hours included in MassDEP Air Plan Approval or ERP limit (300 hours per rolling 12 months) which overrides EPA unlimited emergency use
- ERP requires ULSD which overrides EPA requirement starting in 2015 for emergency DR engines

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